CLAIMS

1. A method of identifying an agent that modulates a signal transduction pathway, said method comprising the steps of:

(i) providing a polypeptide comprising an RKIP motif; and

(ii) contacting said polypeptide with a candidate agent, wherein binding of the candidate agent to said RKIP motif is indicative that said candidate agent is a signal transduction modulating agent.

2. The method of claim 1 wherein said binding is detected using a method selected from the group consisting of surface plasmon resonance, yeast two-hybrid assay, pull-down assay, FRET, fluorescence polarization assay, scintillation proximity assay, transcription assay, kinase assay and transformation assay.

3. The method of claim 1 wherein said modulation is an increase in the activity of said signal transduction pathway.

4. The method of claim 1 wherein said modulation is a decrease in the activity of said signal transduction pathway.

5. A method of identifying an agent that modulates cell growth, said method comprising the steps of:

(i) providing a polypeptide comprising an RKIP motif; and

(ii) contacting said polypeptide with a candidate agent, wherein binding of the candidate agent to said RKIP motif is indicative that said candidate agent is a cell growth modulating agent.

6. The method of claim 5 wherein said binding is detected using a method selected from the group consisting of surface plasmon resonance, yeast two-hybrid assay, pull-down assay, FRET, fluorescence polarization assay, scintillation proximity assay, transcription assay, kinase assay and transformation assay.

7. The method of claim 5 wherein said modulation is an increase in cell growth.

8. The method of claim 5 wherein said modulation is a decrease in cell growth.

9. The method of claim 8 wherein said modulation occurs in a cell proliferative disease.

10. The method of claim 9 wherein said disease is cancer.

11. A method of identifying an agent that modulates apoptosis, said method comprising the steps of:

(i) providing a polypeptide comprising an RKIP motif; and

(ii) contacting said polypeptide with a candidate agent, wherein binding of the candidate agent to said RKIP motif is indicative that said candidate agent is an apoptosis modulating agent.

12. The method of claim 11 wherein said binding is detected using a method selected from the group consisting of surface plasmon resonance, yeast two-hybrid assay, pull-down assay, FRET, fluorescence polarization assay, scintillation proximity assay, transcription assay, kinase assay and transformation assay.

13. The method of claim 11 wherein said modulation is an increase in apoptosis.

14. The method of claim 13 wherein said modulation occurs in a tumor.

15. The method of claim 11 wherein said modulation is a decrease in apoptosis.

16. A method of identifying an agent that modulates an RKIP-sensitive pathway, said method comprising the steps of:

(i) providing a polypeptide comprising an RKIP motif; and

(ii) contacting said polypeptide with a candidate agent, wherein binding of the candidate agent to said RKIP motif is indicative that said candidate agent is a modulator of an RKIP-sensitive pathway.

17. The method of claim 16 wherein said binding is detected using a method selected from the group consisting of surface plasmon resonance, yeast two-hybrid assay, pull-down assay, FRET, fluorescence polarization assay, scintillation proximity assay, transcription assay, kinase assay and transformation assay.

18. The method of claim 16 wherein said modulation is an increase the activity of an RKIP-sensitive pathway.

19. The method of claim 18 wherein said modulation occurs in a tumor.

20. The method of claim 16 wherein said modulation is a decrease in the activity of an RKIP-sensitive pathway.

21. A method of identifying an agent that modulates the activity of an RKIP motif-containing polypeptide, said method comprising the steps of:

i) providing an RKIP motif-containing polypeptide and a polypeptide binding partner thereof; and

ii) contacting said RKIP motif-containing polypeptide and said binding partner thereof under conditions permitting the binding of said RKIP motif-containing polypeptide to said binding partner thereof;

iii) and monitoring the association of said RKIP motif-containing polypeptide and said binding partner thereof in the presence and absence of a candidate agent, wherein an increase or

decrease in the binding of said RKIP motif-containing polypeptide to said binding partner thereof is indicative that said candidate agent modulates the activity of an RKIP motif containing polypeptide.

22. The method of claim 21 wherein said monitoring is performed using a method selected from the group consisting of : surface plasmon resonance, yeast two-hybrid assay, pull-down assay, FRET, fluorescence polarization assay and scintillation proximity assay.

23. A method of identifying an agent that modulates the activity of an RKIP motif-containing polypeptide, said method comprising the steps of:

i) providing a cell comprising a reporter gene construct wherein the expression of said reporter gene is functionally coupled to a control region regulated by an RKIP-sensitive kinase; and

ii) measuring the amount of reporter gene expression from said construct in the presence and absence of a candidate agent, wherein an increase or decrease in the expression of said reporter is indicative that said candidate agent modulates the activity of an RKIP motif-containing polypeptide.

24. The method of claim 23 wherein the expression of said reporter gene is controlled by an AP-1 sensitive control region which is functionally coupled to said reporter gene.

25. The method of claim 23 wherein the expression of said reporter gene is controlled by an NF-κB sensitive control region which is functionally coupled to said reporter gene.

26. A method of detecting a condition associated with the activity of an RKIP-sensitive signal transduction pathway comprising:

a) measuring the amount of an RKIP motif-encoding RNA present in a tissue sample; and

b) comparing said amount an RKIP motif-encoding RNA present in said sample to the amount of said RKIP motif-encoding RNA present in a control tissue sample present in a control tissue sample, wherein an increase or decrease in the amount of said RKIP motif-encoding RNA relative to the amount of said RKIP motif-encoding RNA in said control tissue sample is indicative of a condition associated with the activity of an RKIP-sensitive signal transduction pathway.

27. The method of claim 26 wherein said measuring is performed by a method selected from the group consisting of RT-PCR, RNase protection, in situ hybridization and Northern hybridization.

28. A method of detecting a condition associated with the activity of an RKIP-sensitive signal transduction pathway comprising:

a) measuring the amount of an RKIP motif-containing polypeptide present in a tissue sample; and

b) comparing said amount of an RKIP motif-containing polypeptide present in said sample to the amount of an RKIP motif-containing polypeptide present in a control tissue sample, wherein an increase or decrease in the amount of said RKIP motif-containing polypeptide relative to the amount of said RKIP motif-containing polypeptide in said control tissue sample is indicative of a condition associated with the activity of an RKIP-sensitive signal transduction pathway.

29. The method of claim 28 wherein said condition is cancer.

30. The method of claim 28 wherein said measuring is performed by measuring the binding of an antibody to said RKIP motif-containing polypeptide or an antigen-binding fragment thereof.

31. A method of identifying an agent that modulates the RKIP-sensitive phosphorylation of a polypeptide, comprising the steps of:

a) providing a system that permits phosphorylation of said polypeptide by an RKIP-sensitive kinase; and

b) detecting phosphorylation of said polypeptide in the presence and absence of a candidate agent wherein an increase or decrease in phosphorylation is indicative that said agent is a modulator of the RKIP-sensitive phosphorylation of said polypeptide.

32. The method of claim 31 wherein said RKIP-sensitive kinase is selected from the group consisting of Raf, MEK, ERK, NIK and TAK.

33. A method of inhibiting the activity of an RKIP-sensitive kinase, comprising the step of contacting said RKIP-sensitive kinase with an amount of an agent which inhibits the activity of said RKIP-sensitive kinase sufficient to inhibit said activity.

34. The method of claim 33 wherein said agent is a polypeptide.

35. The method of claim 34 wherein said polypeptide comprises an RKIP motif.

36. The method of claim 33 wherein said kinase is a MAPK/ERK kinase.

37. The method of claim 33 wherein said agent binds to Raf-1.

38. A method of treating a disorder that is associated with inappropriate expression or activity of an RKIP family polypeptide comprising administering a pharmaceutical composition comprising an agent that modulates the activity of an RKIP family polypeptide to an individual in need of treatment for a cell proliferative disorder.

39. A method of treating a disorder that is associated with inappropriate activity of an RKIP-sensitive signal transduction pathway comprising administering a pharmaceutical composition comprising an agent that modulates the activity of an RKIP family polypeptide to an individual in need of treatment for a disorder that is associated with inappropriate activity of an RKIP-sensitive signal transduction pathway.

40. A polypeptide consisting essentially of an RKIP motif.

41. An RKIP motif fusion protein.

42. An RKIP motif-containing fusion protein.

43. An isolated nucleic acid encoding an RKIP motif cassette.

44. The isolated nucleic acid of claim 43 wherein said nucleic acid encoding an RKIP motif cassette comprises a vector sequence.

45. The isolated nucleic acid of claim 44 wherein said nucleic acid encoding an RKIP motif cassette is linked to sequences encoding a heterologous amino acid sequence such that said vector encodes a fusion protein comprising an RKIP motif.